**Table S3.** Monotone DNF learning algorithm

**Monotone DNF Learner ($F$, $S$):**
**Input:**

**F:** A set of selected features (by CF(), for example)
**S**: the labeled training datasets

**Steps:**

1. Construct {L}, the list of literals in the features (e.g. 5A).
2. Throw out L that does not cover any positive sequences.
3. Combinatorial construct {Clauses}, the list of conjunctive clauses from {L}, (e.g. $5A\ AND\ 8C$). The possible combinations are $|L|$ chooses $1, 2, .., |F|$.
4. Throw out the conjunctive clauses that cover any negative sequences.
5. Incrementally construct {DNF}, the list of disjunctive normal form that covers all positive sequences but no negative sequences: starts from 1 clause, construct DNF from {Clauses}, try the next larger number if no solution learned.

**Output:**

The set of the shortest DNF